

REMARKS

Claims 1-7, 29, 30, 32-34, 41, 44-48, 50-53 are pending. By this Amendment, claims 1, 41, 44 and 48 are amended. By this Amendment, claims 42 and 43 are cancelled without prejudice or disclaimer. Claims 8-28, 35-40, 43 and 49 were previously cancelled without prejudice or disclaimer. Applicants respectfully request reconsideration in view of the above Amendments and following remarks.

**I. *Claims 1-7, 29-34 and 41, 42, 44-48 and 50-52 Define
Patentable Subject Matter Pursuant to 35 USC §103***

The Office Action rejects claims 1-7, 29-34, and 41, 42 and 44-48 under 35 USC §103(a) as being unpatentable over U.S. Published Application No. 20040088469A1 (“Levy”) in view of U.S. Patent Application No. 6,557,065 (“Peleg”). The Office Action also rejects claims 50-52 under 35 U.S.C. §103(a) as unpatentable over Levy and Peleg in view of U.S. Patent No. 5,546,530 to Grimaud (“Grimaud”). The rejections are respectfully traversed.

As described in greater detail below, the invention provides a novel and non-obvious motherboard that accepts multiple high performance video cards and coordinates those multiple high performance video cards to provide improved video performance to a display device. As described in the specification of the present application, it is highly desirable to provide a motherboard having multiple high-speed video card slots that are capable of receiving high performance video cards that can then be operated in parallel. In this way, the invention allows the leveraging of multiple standard, off-the-shelf video cards.

The Office Action states that Levy discloses high speed video card slots including at least one first video card slot and a second video card slot. Office Action at page 3, paragraph 7.

However, Levy merely states that

The computing device 100 may comprise one or more devices (DEVICES 1-5) such as for example, Ethernet cards, video cards, RAID controllers, SCSI Controllers, ATA disk controllers, PCU bridges, etc coupled to a root device (DEVICE 0) of the chipset 104. Paragraph 16.

Applicants submit that Levy fails to disclose or suggest “a plurality of high speed video card slots ...including at least one first video card slot and second video card slot,” as recited in claim 1. Further, Levy does not provide any disclosure regarding the attachment and operation of two or more high speed video cards. Levy also does not provide any disclosure regarding slots for receiving multiple high speed video cards. The Office Action incorrectly interprets above quoted section from Levy as disclosing a plurality of high speed video card slots.

However, Levy only suggests examples of components useable on a motherboard but does not teach or suggest the features of claim 1. In order for a reference to anticipate a claim or render a claim obvious, it must enable the subject matter that it is alleged to cover. Levy does not provide any disclosure that would enable the features of claim 1. Therefore, Applicants submit that Levy does not teach the features of claim 1 as described above.

The Office Action also asserts that “Peleg describes a motherboard (16, Figure 3) that enables a first (60) and a second video card (200) to attach, respectively, to the at least one first video card slot (62) and second video card slot (205).” Applicants submit that the Office Action has erroneously described element 200 as a ‘video card.’ As shown in Fig. 3 of Peleg, the reference numeral 200 refers to a RDRAM, co-processor or a second graphics processor. Peleg

also refers to a “co-processor,” (Col. 4, line 18), a “graphics processor,” (Col. 4, line 18), and “other controller or interface *chips*,” (Col. 4, lines 26-27) (emphasis added). Peleg also notes that “the RDRAM®, co-processor and second graphics component can be replaced with a different *chip* in order to perform different functions.” (Col. 4, lines 44-46) (emphasis added). A “chip” is not a “video card,” nor is a “video card” a “chip.” A chip is “A microelectronic semiconductor device consisting of many interconnected transistors and other components.” “Chip,” Free On-Line Dictionary of Computing, <http://foldoc.doc.ic.ac.uk/foldoc/foldoc.cgi?query=chip> (last updated July 3, 1997). A video card is “A circuit board fitted to a computer, especially an IBM PC, containing the necessary video memory and other electronics to provide a bitmap display.” “Video Card,” Free On-Line Dictionary of Computing, <http://foldoc.doc.ic.ac.uk/foldoc/foldoc.cgi?query=video+card> (last updated September 16, 1996). Thus, although there are chips on a video card, but they are not at all the same thing. Peleg discloses “Adding an external graphics chip to overcome having a perceived obsolete integrated graphics processor.” (Col. 6, lines 5-6) There is no mention in Peleg of adding a second video card, nor does Peleg even mention enabling the external graphics “chip” to operate in parallel with a video card. Thus, Peleg does not disclose the use of a second high speed video card and also does not teach or suggest a slot for receiving a high speed video card.

The specification of the Peleg describes component 200 as a RDRAM, co-processor or second graphics processor. The Office Action also asserts that the component 200 of Peleg may be a co-processor and that co-processor is a processor that operates concurrently with another processor. The Office Action then asserts that the motherboard enables the first and second

video card to operate concurrently to output graphics data. However, Peleg does not disclose or suggest that component 200 is a video card capable of working in parallel with another video card. There is also nothing in the specification of Peleg to support the Office Actions assertion that component 200 is a co-processor.

Even if it was assumed that the component 200 is a co-processor, Applicant respectfully disagrees with the Examiner's definition of a co-processor as a "processor that operates concurrently with another processor." This definition is contrary to both dictionary definitions and standard industry usage. A co-processor is "Any computer processor which *assists* the main processor by performing certain special functions, usually much faster than the main processor could perform in software." "Coproprocessor," Free On-Line Dictionary of Computing, <http://foldoc.doc.ic.ac.uk/foldoc/foldoc.cgi?query=coprocessor&action=Search> (last updated January 5, 1995) (emphasis added). Claim 1 of the above-referenced application describes a motherboard "wherein the motherboard enables the first and the second video card to operate *in parallel* to output graphics data." (emphasis added). Parallel processing is "The simultaneous processing of different tasks by two or more microprocessors..." "Parallel Processing," American Heritage Dictionary of the English Language (4th ed. 2000), available at <http://www.bartleby.com/61/1/P0060150.html>; see also, e.g., "Parallel Processing," Free On-Line Dictionary of Computing, <http://foldoc.doc.ic.ac.uk/foldoc/foldoc.cgi?parallel+processing> (last updated November 7, 2004) (parallel processing is "The simultaneous use of more than one computer to solve a problem."); "Parallel Processing," Webopedia, http://www.pcwebopaedia.com/TERM/P/parallel_processing.html (last updated October 2, 2003) (parallel processing is "The simultaneous use of more than one CPU to execute a program.").

Even if one were to assume that Peleg describes a “second video card,” the “second video card” in Peleg is a “coprocessor,” that would take over certain computations from the first video card if it can do them faster. In contrast, the second high speed video card of claim 1 of Applicants’ invention operates *in parallel* with the first video card and does not “assist” the first video card, but rather produces its own graphics data in addition to the data produced by the first video card. If Peleg was assumed to provide a “second video card,” it would not produce its own graphics data, but only assist the first video card in computing graphics data. Thus, Peleg does not disclose a motherboard that enables the at least one first video card and second video card to operate in parallel to output graphics data.

The Examiner also asserts that it would have been obvious to modify the device of Levy so that the computer device is a motherboard as suggested by Peleg. When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references. *In re Geiger*, 815 F.2d 686, 688 (Fed. Cir. 1987). Although the suggestion to combine references may flow from the nature of the problem, *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573 (Fed. Cir. 1996), the suggestion more often comes from the teachings of the pertinent references, *In re Sernaker*, 702 F.2d 989, 994 (Fed. Cir. 1983), or from the ordinary knowledge of those skilled in the art that certain references are of special importance in a particular field, *Pro-Mold*, 75 F.3d at 1573 (*citing Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297 n.24 (Fed. Cir. 1985)). “Critical to the analysis is an understanding of the particular results achieved by the new combination.” *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143 (Fed. Cir. 1985). “Not only must the claimed invention as a whole be evaluated, but so also must the references as a whole, so that

their teachings are applied in the context of their significance to a technician at the time--a technician without our knowledge of the solution.” *Id.* Nothing in either Peleg or Levy addresses the particular problem of a motherboard enabling two video cards to operate in parallel. It is the coordination of the video cards that is the primary advantage of the Applicants’ invention. Yet, neither Peleg nor Levy does more than mention video cards or graphics co-processors. At most, both references mention the possibility of attaching two video cards to a motherboard, nowhere do they address the problem of coordinating the cards, nor do they even suggest that such coordination would be possible. Peleg does disclose that there is a “substantial need ... for a new, fast bus that is protocol independent and can couple multiple agents.” (Co. 2, lines 25-32) However, the need for a protocol independent bus does not enable the coordination of video cards to produce a single display. The Examiner is merely using “the hindsight gleaned from the invention itself.” *Id.*

Therefore, Applicants submit that the combination of Levy and Peleg does not provide the Applicants’ invention as recited in claim 1. Further, as described above, there is insufficient motivation to combine and/or modify Levy and Peleg to arrive at the invention recited in claim 1. Therefore, withdrawal of the rejection of claim 1 is respectfully requested.

With regard to claim 2, the Office Action asserts that Levy describes a switch (116, Figure 3) connected to the interconnect (Device 0), wherein the switch distributes bandwidth from the interconnect to the plurality of high-speed video slots [0021, 0017, 0018, 0016]. Applicants disagree with the Office Action’s characterization of Levy. The switch 116 does not allocate bandwidth but only assists with turning the device on or off. This is illustrated in Fig. 3 of Levy which shows that each port 1, 2 and X has its own port receiver 116₁, 116₂, 116_X.

Therefore, Levy does not teach or suggest the features of claim 2. Therefore, withdrawal of the rejection of claim 2 is respectfully requested.

With regard to claim 3, the Office Action asserts that Levy discloses an interconnect comprising a x16 connection, and wherein the switch (116, Figures 3) distributes bandwidth from the x16 connection to two x16 video card slots [0001, 0021, 0017, 0018, 0016]. However, Levy does not provide a switch that distributes the bandwidth as recited in claim 3. Therefore, withdrawal of the rejection of claim 3 is respectfully requested.

With regard to claim 29, the Office Action asserts that Levy discloses that the interconnect comprises a first x16 connection to the first video card slot and a second smaller-scaled connection to the second video card slot [0001, 0016]. Levy does not disclose first and second video card slots and particularly a second smaller-scaled connection to the second video card slot as recited in claim 29. Therefore, withdrawal of the rejection of claim 29 is respectfully requested.

With regard to claim 31, the Office Action states that Levy gives an example of a first video card slot and a second video card slot both having pre-specified dimensions of a x4 link. However, Levy does not contain any discussion of slots for receiving high speed video cards. Therefore, withdrawal of the rejection of claim 31 is respectfully requested.

With regard to claim 32, the Office Action asserts that Levy discloses first dimensions of the video card slots that are selected to allow a graphics card to be coupled to any of the video card slots. However, the Levy fails to provide any disclosure related to the dimensions of the video card slots. Therefore, withdrawal of the rejection of claim 32 is respectfully requested.

With regard to claim 41, Applicants submit that the points discussed in connection with claim 1 are equally applicable to claim 41. In addition, claim 41 recites a single interconnect that provides data paths to the processor socket. In contrast, Peleg discloses two interconnects. In addition, the applied references fail to teach or suggest a plurality of high speed video cards each having pre-specified dimensions. Thus, it is respectfully submitted that the combination of Levy and Peleg fail to teach or suggest applicants invention as recited in claim 41. Therefore, withdrawal of the rejection of claim 41 is respectfully requested.

With regard to claim 48, Applicants submit that the points discussed in connection with claim 1 are equally applicable to claim 41. In addition, dependant claims 4-7, 30, 33, 34, 42 and 44-47 are likewise distinguishable over the applied references for at least the reasons described above. With regard to claims 50-52, it is respectfully submitted that Girmaud fails to supply the deficiencies of Levy and Peleg. Therefore, withdrawal of the rejection of these claims is also respectfully requested.

II. SUBMISSION OF DECLARATION UNDER 37 C.F.R. §1.132

In addition to the points described above, Applicants also respectfully submit the enclosed Declaration Under 37 C.F.R. §1.132 establishing the novelty and non-obviousness of Applicants' invention.

When considering the obviousness of an invention, objective evidence or secondary considerations such as unexpected results, commercial success, long-felt need, failure of others, copying by others, licensing, and skepticism of experts are relevant to the issue of obviousness and must be considered in every case in which they are present. When evidence of any of these secondary considerations is submitted, the examiner must evaluate the evidence. The weight to

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be accorded to the evidence depends on the individual factual circumstances of each case.

Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987). The ultimate determination on patentability is made on the entire record. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

Evidence of unexpected results is intended to directly establish that an invention solved a known problem or produced advantages not expected by the prior art. Other types of objective evidence may also be submitted to indirectly establish advantages of the invention. This evidence relates to the real world activities of others as an inference of what one of ordinary skill in the art would or would not have done. Common examples of real world events that have been recognized as indicia of non-obviousness include:

- (1) commercial success of the claimed invention;
- (2) long felt need in the art for a solution to a known problem;
- (3) failure of others to solve a known problem;
- (4) skepticism of experts; and
- (5) copying of the invention in preference to the prior art.

As described in the enclosed Declaration Under 37 C.F.R. §1.132, the products implementing the Applicants' invention has achieved significant commercial success in the marketplace and represent a significant advance over the previous state of the art. The success of these products is directly related to features claimed in Applicants' invention. In addition, as described in the enclosed Declaration, there has been significant copying of the Applicants' invention over conventional graphics systems.

CONCLUSION

In view of the foregoing, Applicants respectfully request the reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution.

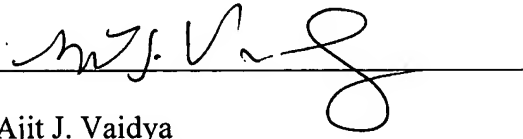
If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1349. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

HOGAN & HARTSON, LLP

Dated: April 20, 2006

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Declaration Under 37 C.F.R. §1.132 with Attachments